

Attorney Docket No. P66378US0  
Serial No.: 09/762,304

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims:**

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Claim 1-11 (previously canceled)

Claims 12-26 (currently canceled)

27 (new). A method for determining the chemosensitivity of cells towards at least one substance by measuring the apoptosis induced by said at least one substance comprising:

- a) incubating a sample comprising cells and a medium with at least one substance,
- b) measuring the accumulated caspase activity in the sample upon disruption of the cells without previously separating off the cells, the accumulated caspase activity being measured utilizing a fluorogenic substrate comprising the sequence motif DEVD,

wherein the extent of apoptosis is commensurate with the chemosensitivity of the cells towards said substance.

28 (new). The method according to claim 27, wherein said cells are animal, including human, cells.

29 (new). The method according to claim 28, wherein the cells are leukemia cells, cells of solid tumors, cells of pathological organs, and/or reference cells.

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30 (new). The method according to claim 28, wherein the reference cells are cells from organs other than the pathological ones, or cells from healthy regions of pathological organs.

31 (new). The method according to claim 27, wherein the substance is a pharmaceutically active substance.

32 (new). The method according to claim 31, wherein the pharmaceutically active substance is a chemotherapeutic agent.

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33 (new). The method according to claim 27, wherein the substance is selected from the group consisting of environmental pollutants, peptides, nucleic acids, PNAs, nucleic acid hydrides, and derivatives thereof.

34 (new). The method according to claim 27, wherein the caspase activity is measured through a turnover rate of the fluorogenic substrate.

35 (new). The method according to claim 27, wherein the accumulated caspase activity is measured no sooner than 10 h after said at least one substance has been added to the sample.

36 (new). The method according to claim 35, wherein no sooner than 10 h is 24 to 28 h.

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37 (new). The method according to claim 27, wherein the caspase activity measured is standardized for the total number of cells.

[ 38 (new). The method according to claim 27, wherein the fluorogenic substrate is part of a lysis buffer added to the sample for disruption of the cells.

39 (new). The method according to claim 27, wherein the fluorogenic substrate includes a dye portion or a rare-earth chelate.

40 (new). The method according to claim 27, wherein the fluorogenic substrate is a fluorogenic DEVD-substrate.

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41. (new). In a method for developing new chemotherapies of tumor diseases, said method comprising determining the chemosensitivity of tumor cells toward a substance, the improvement comprising determining the chemosensitivity by the method of claim 27.